DR. JOHN EDWARD GRAY, F.R.S.

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From the "Athenæum."

AFTER more than fifty years of unremitting labour in the field of natural history, Dr. John Edward Gray died on Sunday last, the 7th inst., at his residence in the British Museum, aged seventy-five. Dr. Gray was one of a family of naturalists. His father, Samuel Frederick Gray, by the publication of "The Natural Arrangement of British Plants," was the first to introduce into this country Jussieu's method of classification as distinguished from that proposed by Linnæus; and his great uncle, Dr. Edward Whittaker Gray, was also a botanist of eminence, and had the sole charge of the collection of Natural History and Antiquities, which formed the nucleus of the present British Museum. His brother, the late George Robert Gray, was the author of many valuable publications on entomology and ornithology.

Dr. Gray, from his earliest youth, was endowed with a perseverance and energy of character that enabled him to master with facility every subject to which he directed his attention; and his faculty of classification, combined with great power of memory and quick insight into specific differences, gave him very early a high position among the naturalists of Europe. Intended originally for the medical profession, his innate tastes soon led him to adopt the career in which he became so distinguished, even if an extraordinary repugnance to scenes of pain, which his sympathizing nature could never overcome,

had not caused him to neglect a profession in which he might have become eminent. In 1821 he assisted his father in the work we have referred to; and soon afterwards his energy and intelligence recommended him to the zealous men who were agitating the subject of the emancipation of the slaves. Into the attainment of this object he threw himself with his characteristic heartiness, visiting Bristol, Liverpool, and Glasgow. In 1824 he was appointed, through the influence of the late John George Children, one of the assistants in the Natural History Department of the British Museum, having worked there for some time previously, assisting Dr. Leach, the predecessor of Mr. Children as Keeper of the Natural History Collection, in his labours. In 1826 he married the widow of his cousin, Francis Edward Gray, who survives him, and found in her a fitting help-mate to share and encourage him in all his undertakings. In the summer after his marriage, and for many following years, he made a practice of spending his vacations in visiting different places on the Continent where museums existed, making many warm and lasting friendships among the professors and others who shared his tastes and entered into his studies, making his observations and notes on whatever suggested itself as likely to be of value in the improvement of the national collection. In 1840, upon the retirement of Mr. Children, he was appointed to the post of Keeper of the Zoological Collection, and he threw himself at once with ardour into the work of arranging the now magnificent collection in our National Museum. Those who are old enough to remember the confusion that reigned in the dark rooms of Montague House, where camelopards, crustaceæ, and corals were crowded together, can appreciate the changes effected under the superintendence of Dr. Gray. In this work he was ably seconded by his assistants. His brother George devoted himself to the ornithological order; the late Edward Doubleday and Mr. Frederick Smith to the lepidoptera and coleoptera, etc.; Dr. Baird, to conchology; and Dr. Günther, who succeeds him in his post, to ichthyology; and by their united efforts

they have made the British Museum the noblest collection the world has ever seen.

Dr. Gray's energy and industry were inexhaustible and untiring. Hard work in whatever he undertook was his habit. For the first sixteen years after his appointment he resided chiefly at Blackheath, and in those days the stage-coach was the usual conveyance. After a busy day in the Museum, if he did not stay in town for the meeting of one or other of the Societies of which he was a member, he was in the habit of hurrying to catch the coach at Charing Cross; and then, while on the road, he would devour the contents of some work that bore upon his researches, or engage in warm discussion upon the topics that were agitating people's minds, and, after a hasty dinner, he would set-to upon some work that he had in hand for publication. The number of papers, and other works of greater or less magnitude, published by him is immense, and attest his industry, research, and ability. He was pre-eminently a scientific naturalist as distinguished from a popular writer, and his work is, therefore, better known to students and professors than to the general reader. To this journal he was a frequent contributor.

In 1870 he was seized by paralysis, and lost the use of his right side; but, in spite of this affliction, he never ceased to give evidence of his mental activity; and month after month the *Annals of Natural History* continued to be enriched by his contributions; and so late as January last he wrote a paper "On the Madagascar River Hog, Potamochœrus," and "On the Skulls of Three Species of the Genus"; and in the June previously he published the list of seals and morses, sea-lions and sea-bears, in the British Museum, which forms a valuable monograph of all the known species.

A learned Correspondent writes:—

"Dr. Gray's untiring efforts were principally directed towards forming a zoological collection worthy of the country; and in this he succeeded so well that he soon diverted the flow of foreign naturalists from Paris to London, the University of Munich conferring on him the honorary degree of Doctor of Philosophy for having formed the largest zoological

collection in Europe. To insure its proper arrangement, he recommended the Trustees to publish printed systematic catalogues. The later ones were not merely nominal lists, but contained descriptions of the objects, thus forming a series of handbooks that have much accelerated the progress of zoological science, and have rendered the collections more readily accessible to the student than in any other museum. If we understand by the old Linnean school that class of naturalists whose knowledge ranges over many or all branches of Natural History, and who distinguish and arrange the objects rather with the aid of external than anatomical characters, Dr. Gray was one of the most eminent and, perhaps, the last of this school. The overwhelming material which he accumulated had to be arranged, and there remained no time for investigating all the details of internal structure. That his task was a laborious one may be seen from the amount of work published by him, the Catalogue of Scientific Papers published by the Royal Society containing not less than twenty-eight columns of titles of his papers, the number of which must considerably exceed one thousand."

In his private life Dr. Gray was distinguished by a generosity and integrity of mind that commanded the esteem of a large number of friends; and though, from his hatred of anything like sham and imposture, he may at times have expressed himself strongly and given pain, no one was ever more ready to do an act of kindness that condoned the offence he had given.

From the "Gardeners' Chronicle."

THE announcement of the death of John Edward Gray will be received with universal regret among naturalists. Of late years Dr. Gray has been much better known as a zoologist than as a botanist. Nevertheless he began his career as a botanist, and never entirely abandoned the *amabilis scientia*. He also rendered considerable services to horticulture, on which account some brief references to his career will not be out of place, though naturally we shall make but little allusion to his zoological work, extensive as that has been.

The father of J. E. Gray, and of his scarcely less celebrated brother, G. R. Gray, was known everywhere to the last generation of druggists as the author of a most useful supplement to the "Pharmacopœia." John Edward was destined for the medical profession, but speedily devoted himself to botanical

pursuits; the first overt indication of this was a book published in the father's name, but of which the substance was furnished by the son. This book was worthy of a better fate. It met with a most unworthy reception at the hands of some of the leading botanists of the day, and their opposition was strong enough to mar the success of a book which, had it had fair play, would have constituted really an epoch in the history of botany in this country. As it was, its merits were recognised only after the lapse of time, when much that it contained had been published elsewhere, and when many of the crudities of a young and inexperienced author had necessarily become more apparent by the progress of science in the interval.

At that time (in 1821) the influence of Linnæus was paramount. Sir James Smith, the then leader in the botanical world, was an ardent Linnean, the founder of the Linnean Society, the purchaser of the Linnean library and the Linnean collections, and the compiler of a standard work on British botany arranged according to Linnean principles. When, therefore, a young, and till then unheard-of, naturalist actually dared to bring out a systematic work on English botany, arranged according to the Juissieuan or so-called natural system—a French system, too—we can imagine that the Volscians were fluttered. Had this been the only result, no great harm would have been done; but unluckily, whether their self-love was wounded, or whatever the cause, the botanists of the day subjected Gray to something very like persecution. The facts have never been denied, and so we presume they are substantially true. One result of this persecution was, that when Gray was proposed in 1822 as a Fellow of the Linnean Society, by a number of Fellows, including Haworth and Salisbury, he was unceremoniously rejected.

"If," says Dr. Gray, "the slightest hint had been given to any of my proposers I should have immediately withdrawn, as I could ill afford the subscription. Only a few of the proposers were present, they made so sure of my election, the rejection of a candidate being a very rare event. I only recollect one besides myself. The list of proposers—all persons

doing their uttermost to improve zoology and botany—may have frightened the regular 'Linneans,' of whom Dr. Shaw may be considered the type, and who proposed putting his heel on all shells not in the twelfth edition of the 'Systema Naturæ.' 'Things not in Linnæus ought not to exist.' It was, however, too bad to inflict their wrath on the grandson of the Mr. Gray who translated the 'Philosophia Botanica' of Linnæus for his friend Mr. Lee (of Hammersmith), whose book first introduced the Swedish botanist's scientific writings to English readers. Mr. Haworth, who was present, was so displeased at what he called an unjust and underhand combination to crush a young naturalist, that he made a codicil to his will desiring that his collection of British *Lepidoptera Britannica*, which he had previously left to the Society, should be sold with his other collections. It stirred up my spirit of resistance, and I determined to leave the medical profession, and devote myself to the study of natural science, and I have no cause to regret the determination or its cause. The cause assigned was that in the 'Natural Arrangement of the British Plants,' published under the name of my father (as I was very young, and only occupied on the synoptic part of it), we had quoted the well-known work to which Dr., afterwards Sir J. E. Smith, contributed the text, as Sowerby's *English Botany*, and in so doing had insulted the President, which, I may declare, was perfectly unconscious and unintentional on my part. The text of the earlier numbers of the *English Botany* was furnished gratuitously by my predecessor—Dr. George Shaw. As Mr. Sowerby foresaw that the work was likely to be successful, he arranged with Dr. Smith to give him a guinea for the description of each plate. Dr. Smith made a condition that he was to receive the money with the proofs of the descriptions. At the same time Dr. Smith published the botanical articles to Rees' *Encyclopædia*, a kind of *Species Plantarum*, written according to the name of the genus as it occurred in the alphabet. I suppose, considering the price that was paid for the articles in Rees' *Encyclopædia*, and that paid for the text of the *English Botany*, they must be considered as the best paid botanical writings known. Indeed, what with the money Dr. Smith got for these works, the 'English Flora' and other scientific works, and the eventual purchase of the Linnean collection by the Linnean Society at his death, the acquiring of that collection must have been an excellent investment. Dr. Smith seems never to have forgiven me, for when engaged on the 'Monograph of the Cypræadæ' I wrote to him asking if I might be allowed to see two or three specimens of the Linnean collection. He did not reply to me, but on asking Mr. Sowerby to make the same request for me, he replied that the Linnean shells were not arranged, but any of Mr. Sowerby's friends might see them except Mr. Gray."

These details we quote from an article of Dr. Gray's in the *Journal of Botany*, written many years after the event to

which it relates. From another volume of the same Journal we cite the following interesting details relating to the book which caused so much commotion :—

"I always look back," says Dr. Gray, "with pleasure to the time that I spent in collecting plants and in studying and teaching botany, and especially to the period when I was occupied in preparing the systematic part of the 'Natural Arrangement of British Plants,' the work that first introduced the natural system of plants to the student of English botany; for I need make no secret of the fact that I alone am responsible for that part of the work, since, though it was published under my father's name, he wrote the introduction only. Having in his youth studied British plants according to the system of Ray, he never would adopt the Linnean system; and the only interest that he took in the systematic part of the work was that he considered the 'Genera Plantarum' of Jussieu as a revision and modification, according to the increase of knowledge, of the Rayian method, while he regarded the Linnean system as only a dictionary by means of which the names of plants could be most easily discovered. The kind encouragement and assistance which I received during its preparation from M. De Candolle, the father, and M. Dunal, of Geneva (then in England), from Mr. R. A. Salisbury, and from my dear friends, Edward Bennett, the late secretary of the Zoological Society, and J. J. Bennett, now [lately] Keeper of the Botanical Collection in the Museum, and the use that the course of study it necessitated has been to me in after life, fully made up for all the obstructions and difficulties that were thrown in my way by other botanists, which delayed the appearance of the work for nearly a year, and for the ill-will exhibited towards me for many years after. But their opposition was of no avail; the natural system has been established for years; and though the work was not a success—and, indeed, how could one be that attempted to introduce at once into English botany almost all that had been done on the Continent up to the period of its publication, and thus was so far in advance of the then state of botanical knowledge in England, where the study had been under the incubus of a blind attachment to the Linnean system?—yet it has kept its ground; and the very opposition was useful to me by causing me to pay more attention to analytical studies, and to carry into zoology the knowledge, accurate terminology, and systematic method of study employed in the sister science, which has led me to believe that the study of botany is the best introduction, even now, for the successful prosecution of the other branches of natural science."

Dr. Gray was a most laborious and active worker in various fields of natural history, over-given to controversy—the result, perhaps, of his early experiences—but a warm friend, and

zealous in giving help to younger men. His papers and memoirs must surely considerably outnumber those of any of his colleagues. In the societies and journals with which he was connected there is scarcely a meeting or a number in which Dr. Gray's name does not occur. In other fields than that of natural history his diligence and energy were equally remarkable. Many of the existing scientific societies owe their origin in greater or less part to him. Penny postage, decimal coinage, sanitary questions, education, prison discipline, the opening and utilisation of museums, postage stamps, and we know not what beside, occupied his busy brain.

As a botanist he worked, even in later life, at the seaweeds, and published various memoirs on them.

The International Horticultural Exhibition and Botanical Congress of 1866, which was at first looked rather coldly upon by some of our great naturalists, found a warm advocate and a very liberal supporter in Dr. Gray, who gave up his time, his money, his house to the cause, and who, by bringing persons together beneath his hospitable roof, contributed not slightly to the success of the undertaking as a social gathering of botanists and horticulturists.

Dr. Gray had throughout the active aid and the intelligent sympathy of a wife—herself not unknown to fame—and who knew how to mingle with the energy and sometimes fiery zeal of the man the soft grace and clever tact of the woman.

Dr. Gray some time since resigned his post at the British Museum—a post he filled with so much honour to himself and advantage to the institution since 1824, and was making arrangements to migrate to a new residence, within view of the building he loved so well, when he was bid to cease from his labours and be at rest. Though worn by years and tried by infirmity, he may thus be said to have died in harness, and we feel sure that this is what he himself would have preferred.

From the "Field."

THE death of this eminent zoologist, which took place on the 7th inst., at his residence at the British Museum, has left a void in the scientific world which it will probably be impossible to refill. There are, indeed, many living naturalists whose knowledge embraces a wide gauge of subjects, but they are known chiefly as authorities on one or two special branches of natural history; and the man who would attempt to master the whole of zoological science, at its present rate of progress, would assuredly not compass one tithe of his endeavour.

Dr. Gray, whose loss the scientific world now deplores, was almost the last representative of that old school of scientific men who, following in the wake of Cuvier, have laid the basis of that firm zoological platform on which we now stand, and who have gathered together those magnificent collections in the different countries of Europe which afford to the student in every branch of science the means of prosecuting his studies.

It is difficult for the present generation to realize the obstacles against which a naturalist in the position of Dr. Gray had to contend thirty or forty years ago. Collections of animals did not then arrive wholesale from foreign countries as they do now; there were not half the number of museums in existence, and few private collectors; the art of preserving specimens of natural history was then not nearly as well understood as it is now, and even the specimens which were procured by the different Government exploring expeditions were not always returned in a fit state of preservation. In the face of these difficulties how earnest must have been the endeavours of men who, in spite of the paltry remuneration with which scientific merit is rewarded by the Governments of all countries, have laid the foundations of such museums as those of Paris, Leyden, Berlin, Stockholm, and London, and have conducted them to their present state of excellence. Nothing is easier in these days than to find fault with the

preparation of the old specimens (many of them of historical value) which figure in the collections of the great museums of Europe, and to compare them with the elegantly-mounted examples of the modern taxidermist's art; nor is it a matter of great difficulty for any specialist to improve upon the early labours of any of these first workers in zoology. But too often sufficient allowance in not made for the difficulty in procuring material in days gone by, for the scarcity of books of reference, while certainly none of the facilities for visiting foreign museums existed at the time when many of the works of these zoologists were written. To their deceased countryman Englishmen owe a lasting debt of gratitude. There are many now living who can remember the old Montague House, which stood on the site of the present British Museum; and foreign naturalists who saw the zoological collections there exhibited never failed to render justice to Dr. Gray, under whose direction the Museum has since accumulated the finest zoological collections in the world. For fifty years the deceased naturalist laboured in the National Museum, devoting his whole time and energy to the perfecting of the collections under his charge, and sparing not his own pocket when any emergency arose for purchasing specimens after the Government grant had been exhausted. The British nation may justly be proud of the high position in which the Museum now stands; and it will not grudge a tribute to the memory of the man who, finding the zoological collection one of the poorest, has ended by making it the richest in the world.

Dr. Gray was less known as an author of original works than as a voluminous contributor to periodical literature. The "Catalogue" of the Royal Society gives a list of his scientific papers published between the years 1824 and 1863, and these amount to the astounding number of 497; and as, since that date, the late Doctor relaxed none of his energy, it is quite probable that a complete list of his essays up to the present time would amount to nearly double that number. These published memoirs relate to a variety of subjects, and

range over the whole field of zoology. His separately published works are few, and he is chiefly known for the following: "Spicilegia Zoologica," "Zoological Miscellany," "Gleanings from the Knowsley Menagerie," "Illustrations of Indian Zoology, from General Hardwicke's Collection," "Catalogue of Star-fish in the British Museum," and "The Lizards of New Zealand and Australia." The latter was a re-issue, with additional plates of the illustrations to the "Reptilia," of the "Voyage of the Erebus and Terror," an account of which he had contributed to the zoological portion of that voyage. He also described the mammalia in the Sulphur and Samarang voyages. No notice of Dr. Gray's career would be complete without a word respecting the British Museum catalogues, all of which have been published since he was Keeper of the department, and which now fill three goodly library shelves. Many of the most important were contributed by Dr. Gray himself, the best known being the catalogues of the "Seals and Whales," "Monkeys, Lemurs, and Fruit-eating Bats," "Carnivorous, Pachydermatous, and Edentate Mammalia, 1869;" "Ruminant Animals (Pecora), 1872;" "Catalogue of Lizards," "Shield Reptiles," the last of his contributions being a "Handlist of Shield Reptiles," published in 1873.

Dr. Gray retired from the keepership of the zoological department in December last, having completed his fifty years of service in the Museum, so that he has survived his retirement scarcely three months. He is succeeded in the keepership by Dr. Albert Günther, F.R.S.

From the "Queen."

We have to record the death of a gentleman who has been long and honourably known in the world of scientific research in the person of Dr. John Edward Gray, the distinguished naturalist, who died on Sunday, having just completed his seventy-fifth year. The second son of the late Mr. Samuel Frederick Gray, the author of the "Supplement to the Pharmacopœia," and other works on chemistry, Dr. Gray was

born at Walsall, in Staffordshire, in the year 1800. He was educated with the view of following the medical profession, and studied under his father at St. Bartholomew's and other hospitals. He early showed a taste for natural history. In 1817, on the lecturer on botany at the Borough School of Medicine being unable to continue the course, Dr. Gray was elected by the class to take up the subject, and he continued to lecture for some years on that subject. In 1821 he published his first important work on the "Natural Arrangement of British Plants;" this was the first work in the English language on the natural method, which has now become almost universally adopted. He also about this time became connected with the British Museum, and the zoological department of this institution continued under his charge from 1840, down to his recent retirement through failing health. It was chiefly owing to the ability and perseverance he displayed in its management that the British Museum has taken the foremost rank among European collections. He expended much care and thought upon his scheme for the improvement of our great national galleries of natural history. His views on the mode in which museums should be managed are explained in a paper on this subject contributed to the fifth volume of the *Analyst*, and in his evidence regarding the collections of the British Museum given before various Parliamentary commissions between the years 1836 and 1849. Dr. Gray superintended the preparation of the various catalogues of the zoological specimens preserved in the British Museum, and those referring to the echinoderms, molluscs, tortoises, cetacea, and ruminantia were exclusively written by Dr. Gray. Amidst his labours at the Museum he found time to prepare a long series of treatises and memoirs on subjects of natural history, the simple list of which in 1852 filled twenty pages of the "Bibliographia Zoologiæ." In 1828 he published the first part of a work entitled "Spicilegia Zoologica, or original Figures and short Systematic Descriptions of new and unfigured Animals." This was followed by the "Zoological Miscellany,"

a similar work, appearing at intervals between the years 1831 and 1845. In conjunction with Dr. John Richardson he edited the zoological part of the "Voyages of the Erebus and Terror" (1839-1845). He wrote also the first part of the zoological section of the "Voyage of Her Majesty's ship Sulphur" (1843-1845). Devoting his attention not only to zoology, but also to botany, Dr. Gray acquired a very extensive acquaintance with the algæ and fungi, and wrote various valuable papers on those organisms. Of the many hundred papers written by him on these subjects a comparatively small number relate to sponges, star-fishes, and other radiate animals. The molluscs are treated more copiously, among them being memoirs "On the Systematic Arrangement of the Molluscous Animals," "On Perforations made by Patella and Pholas," "On the Byssus of Unio," and "On the Habits of Snails." The structure and classification of reptiles were to Dr. Gray subjects of careful and laborious research, and it is perhaps in this department of natural science that he won his chief claims to distinction. For Griffith's "Cuvier" he wrote a treatise entitled a "Synopsis of the Class Reptilia;" this was followed by a paper "On a New Arrangement of Reptiles," published in the first volume of the *Annals and Magazine of Natural History*. To the Mammalia Dr. Gray devoted much attention, he having prepared various papers referring to the cetacea, ruminantia, and quadrumana; to which may be added one of a more general character, entitled "A Description of some Genera and Fifty unrecorded Species of Mammals," published in the tenth volume of the *Annals and Magazine of Natural History*. The promptitude with which Dr. Gray would seize on the essential points of resemblance and difference between the various types of animals, and the unwearied zeal in the pursuits to which he devoted his life, are well known to all who have taken part in the discussions of the Zoological Society. Dr. Gray assisted largely in the formation of the Zoological, Entomological, Geographical, Microscopical, and Palæontological Societies; and he took an active part in the

management of the Zoological Society (of which he was many years a vice-president), and had also been President of the Entomological and Botanical Societies. He was also a Fellow of the Royal, the Linnean, Royal Geographical and the Geological Societies, and an honorary Doctor of Philosophy of the University of Munich for having formed "the largest zoological collection in Europe." In 1851 he was appointed acting chairman of one of the juries of the Great Exhibition; and he was a juror of the educational section in the Exhibition of 1862. Dr. Gray, in addition to his labours as a naturalist, always took an active part in questions of sanitary and metropolitan improvements, in public education, prison discipline, and especially in the opening of museums, picture galleries, and gardens to the public, both by writing and in evidence before the Parliamentary committees and commissions.

It only remains to add that Dr. Gray married in 1826 Mrs. Maria Emma Gray, the widow of his cousin, a lady who efficiently assisted him in all his studies, and that she herself published, many years ago, a collection of "Figures of Molluscous Animals for the use of Students."

From the "Academy."

SCARCELY had Dr. Gray quitted the position which he so long held at the British Museum before the melancholy news reaches us that his active life has been brought to a close. It is indeed but a few brief weeks since Dr. Günther was appointed to the Keepership of the Zoological Collections upon the resignation of Dr. Gray, who had occupied this post since 1840.

John Edward Gray, the son of Mr. S. F. Gray, of Walsall, was born in 1800, and educated for the medical profession. At the age of twenty-one he published his "Natural Arrangement of British Plants," a work which has the merit of being an early attempt to introduce the natural system to the notice of British botanists. Three years later he entered the Natural History Department of the British Museum, and rose in 1840 to the rank of Keeper. A fine series of catalogues of the

collections has been issued under his care, many of the departments having been described by himself; thus, only a few months ago he brought out his "Hand-List of Seals, Morses, Sea-Lions, and Sea-Bears." But in addition to these official publications, and to the large number of his communications to learned societies and scientific serials, he found time to write such works as "A Manual of British Land and Fresh-Water Shells;" "Illustrations of Indian Zoology;" and "The Knowsley Menagerie." Years of concentration upon the minute shades of difference necessary for the identification of species scarcely tend to broaden a man's views; but it should not be forgotten that Dr. Gray, in addition to his labours as a systematic zoologist, exercised himself in the discussion of wide questions of social importance, such as public education, prison discipline, the postage system, and the organization of museums and galleries of art. His claims to public notice, however, must rest upon the half-century of scientific work which he honestly devoted to the service of his country.

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